

## CLAIMS

- 1           1.       A variable speed maximal torque transmission comprising:  
2               a planetary gear set comprising a peripheral ring gear enmeshing a plurality of  
3           planet gears and a sun gear in mechanical communication with said plurality of planet  
4           gears;  
5               a carrier in mechanical communication with said planetary gear set;  
6               a motor in mechanical drive communication with said sun gear; and  
7               an auxiliary motor driving said peripheral ring gear.
  
- 1           2.       The transmission of claim 1 wherein said carrier enmeshes said  
2           plurality of planet gears.
  
- 1           3.       The transmission of claim 1 wherein said ring gear rotates at constant  
2           speed.
  
- 1           4.       The transmission of claim 1 wherein said plurality of planet gears is  
2           three planet gears.
  
- 1           5.       The transmission of claim 1 wherein said carrier is an output from the  
2           transmission.

1           6.     The transmission of claim 1 wherein said carrier is coupled to a drive  
2 wheel of a vehicle.

1           7.     The transmission of claim 1 wherein said auxiliary motor imparts  
2 power to said peripheral ring gear to satisfy the relationship  $T_r \geq T_s \cdot \frac{N_r}{N_s}$  where  $T_r$  is  
3 ring gear torque,  $T_s$  is sun gear torque,  $N_r$  is ring gear tooth number and  $N_s$  is sun  
4 gear tooth number.

1           8.     A process for operating a transmission comprising:  
2 turning a planetary gear set with an auxiliary motor through a mechanical  
3 engagement of a toothed ring gear encompassing a set of planet gears where said set  
4 of planet gears simultaneously engages a toothed sun gear; and  
5 driving a carrier mechanically engaging said planetary gear set.

1           9.     The process of claim 8 wherein said planetary gear set is turned at a  
2 variable speed.

1           10.    The process of claim 8 wherein said carrier is a transmission output  
2 operative to power a drive wheel of a vehicle.

- 1            11.    The process of claim 8 wherein turning said planetary gear set induces  
2    a torque on said carrier by way of a torque on said sun gear that satisfies the equation

$$TRatio = \frac{T_c}{T_s} = \frac{-(R_s + R_r)}{R_s} = -\left(1 + \frac{N_r}{N_s}\right)$$

- 3    where  $T_c$  is the carrier torque,  $T_s$  is the sun gear torque,  $N_r$  is the tooth number of  
4    said ring gear, and  $N_s$  is the tooth number of said sun gear.